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RECENT SOVIET WORK ON BRUCELLOSIS

[Comment: In the January 1954 issue of Zhurnal Mikrobiologii, Epidemiologii, i Immuniobiolcgii, the editors announced the major subjects to be reported on in each of the 1954 issues of the periodical. Issue No 1 was devoted to brucellosis. The following report is a summary of the articles on that subject in issue No 1.]

Ye. M. Piletskaya and M. L. Feder [1] of the Stavropol' Kray Antibrucellosis Station reported on their investigation of brucellosis in humans, contracted by the ingestion of food products derived from goats or sheep infected with Br. melitensis or through contact with either the elimination or abortion products or the hides, wool, etc., of such animals. Because the infectious organism, Br. melitensis, is the same for goats and sheep, the authors assumed that a difference which depends only upon the source of the infection should appear in human brucellosis patients. This assumption was borne out by experimental observation of persons suffering from goat or sheep brucellosis.

Sheep brucellosis among persons not directly engaged in sheep raising was encountered much less frequently than goat brucellosis. This was probably due to the comparatively slight human consumption of contaminated sheep-milk cheese (brynza). Sheep brucellosis in humans was found to be only a mild infection. Goat brucellosis, on the other hand, was very severe.

The incubation period for goat brucellosis ranged from 26 to 28 days, and prodromal symptoms were only weakly apparent or entirely absent. The onslaught of the disease was sudden and violent. Early complaints were excessive perspiration; fleeting pains in the bones, joints, and muscles; fever and alternating chills; and severe headaches. During the first 2 to 3 weeks the patients were extremely ill; but no complications developed. The patients were observed for a year after their recovery, and, within this time, immunobiological tests showed that the causative organisms were completely eliminated from their systems.

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The next report [2], by G. A. Balandin of the Rostov-on-Don State Scientific Research Institute, Ministry of Health USSR, concerned the existence of natural brucellosis reservoirs. Although it was found that gray rats, susliks, and the mouse-like rodents of the Gerbillinae subfamily contract brucellosis by coming in contact with the elimination products, or eating the abortion products of farm animals, they, in all probability, do not transmit it to other farm animals or to humans. This conclusion is based on the fact that large quantities of the causative organism must be present in susceptible animals before they will succumb to brucellosis, and that, even if there were large quantities of brucellae in the various elimination and abortion products of rodents, such products are not normally encountered.

Similarly, due to the low concentration of brucellae in the peripheral blood of infected animals, blood-sucking arthropods probably do not transmit brucellosis. The ticks [unnamed], which some authors report as transmitters of the disease, do not eliminate brucellae with their saliva while feeding on their hosts. Furthermore, the few brucellae present in tick organisms undergo biological modifications which attenuate their virulence. Although the brucellae present in preparations made of ground-up ticks have been known to cause brucellosis in guinea pigs, which are highly susceptible to the disease, they produce no effect when administered to farm animals. Consequently, the author is of the opinion that ticks are of little epizootological importance in the spread of brucellosis.

The type differentiation of brucellae into Br. abortus, Br. melitensis, and Br. suis, i.e., according to the genus of farm animals which they infect, is another argument against the idea that wild animals form natural brucellosis reservoirs.

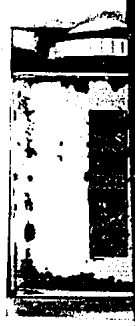
Thus, after prolonged study of extensive epidemiological data, and on the basis of his own experiments, the author concludes that there are no natural brucellosis reservoirs.

V. P. Tyl'chinskaya, R. O. Faytel'berg, and I. V. Aplyak submitted a report [3] on the effect of various conditions of the central nervous system on the course of immunobiological reactions occurring in guinea pigs which have been inoculated with living antibrucellosis vaccine.

The injection of antibrucellosis vaccine into guinea pigs normally produces a significant increase in opsono-phagocytic reactions, the macrophage count, and the titers of agglutinin and precipitin. When the cerebral cortex is stimulated by a preliminary injection of caffeine, these increases appear sooner, and abate more rapidly. On the other hand, the preliminary peroral administration of a bromide retards the activity of the cerebral cortex and causes the increases to appear later and last longer. The authors offer these phenomena as illustrations of Pavlov's theory concerning the effect of the central nervous system, and especially the cerebral cortex, on every activity that occurs in an animal organism.

The fourth report [4] was contributed by P. A. Vershilova and I. N. Kokorin of the Institute of Epidemology and Microbiology imeni Gamaleya, who discuss the course of brucellosis infections in immune organisms.

In the course of their experiments, they noticed that some of the animals in groups which had been vaccinated, and were therefore presumably immune, contracted the disease. In order to study this phenomena, a vaccine culture of Br. abortus BA was injected subcutaneously into 92 guinea pigs. These vaccinated animals were then divided into two groups. The first group was used to study the distribution and persistence of brucellae in the organs of the animals. After 30 days, each animal in the second group, together with an equal number of



unvaccinated control animals, was given a subcutaneous injection of a virulent strain of Br. melitensis. Eighty-two percent of the vaccinated animals proved to be immune. All of the control animals became infected immediately. The 18 percent of vaccinated animals that became infected acquired the infection 30-60 days after the control animals. This was the time when their immunity, as measured by the elimination of the vaccine strain brucellae from their bodies, was being dissipated most rapidly. The infection with Br. melitensis was apparently a superinfection, and served as a revaccination, i.e., the animals were subsequently immune to infection for the usual period.

These authors reported similar results results in humans vaccinated with an avirulent strain of Br. abortus BA.

P. A. Vershilova and I. N. Kokorin [5] also investigated the morphological, bacteriological and immunological characteristics of the vaccine process which occurs when a living brucellosis vaccine is injected into guinea pigs.

They give a detailed report of their morphological and histological findings in experiments on three groups of guinea pigs. The first group was immunized by injecting a living brucellosis vaccine prepared from Br. abortus bovine BA, and the second, by injecting a heat-treated brucellosis vaccine. The third group was infected with a virulent culture of ovine Br. Melitensis.

The vaccine process in the first group was characterized by early generalization and by hyperplasia of the reticulo-endothelial elements of the liver, spleen, lungs, and kidneys and of the inguinal, paraaortic, submaxillary and cervical lymph glands. The hyperplasia increased during the first month of the infection and then gradually decreased as the organism eliminated the brucellae. The vaccine process evoked by the living vaccine caused no permanent pathological changes in the organs of the animals. Its use assured a high degree of immunity.

The animals of the second group developed a slight hyperplasia of the reticuloendothelial cells in the above-mentioned organs and regional lymph glands, but the hyperplasia disappeared rapidly, and within 2-3 months after immunization the organs were again histologically normal. The immunity imparted by the heat-treated vaccine, judging by the extent and permanence of the changes occurring in the organs and lymph glands was, according to the authors, not as pronounced as that imparted by the living vaccine.

The third group, after receiving a 20-30 microbe dose of the virulent culture, developed a generalized brucellosis infection which produced severe morphological changes in the organs accompanied by the formation of granulomas in the lymph glands and spleen and significant necrobiotic changes, including abcesses, in the regional lymph glands.

By comparing the morphological changes occurring after infection by small doses of the virulent strain of Br. melitensis with those occurring after immunization by large doses (a billion microbes) of the vaccine culture strain, the authors showed that, despite the massive doses of the latter, the immunized animals underwent a beneficial vaccine process which did not produce severe morphological changes in their organs and, at the same time, made certain the immunological reorganization of their organisms.

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BIBLIOGRAPHY

1. Ye. M. Pitetskaya and M. L. Feder, The Clinical-Epidemiological Characteristics of Goat Brucellosis in Humans, Zhur Mikro Epid i Immun, No 1, pp 17-22, Moscow, 1954.

2. G. A. Balandin, The Problem of the Existence of Natural Reservoirs of Brucellosis, Zhur Mikro Epid i Immun, No 1, pp 14-17, Moscow, 1954.

3. V. P. Tul'chinskaya, R. O. Faytel'berg, and I. V. Aplyak, The Dynamics of the Immunobiological Reactions of Guinea Pigs Vaccinated by a Living Anti-brucellosis Vaccine While Subject to Various Conditions of the Central Nervous System, Zhur Mikro Epid i Immun, No 1, pp 23-27, Moscow, 1954.

4. P. A. Vershilova and I. N. Kokorin, The Course of Brucellosis Infection in an Immune Organism, Zhur Mikro Epid i Immun, No 1, pp 27-31, Moscow, 1954.

5. P. A. Vershilova and I. N. Kokorin, The Morphological and Bacteriological Characteristics of the Vaccine Process in Brucellosis, Zhur Mikro Epid i Immun, No 1, pp 7-13, Moscow, 1954.

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